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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,882	04/06/2006	Martinus Jacobus Coenen	NL031193US	3826

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EXAMINER

CLARK, JASMINE JHIHAN B

ART UNIT	PAPER NUMBER
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2815

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/574,882	Applicant(s) COENEN, MARTINUS JACOBUS	
	Examiner Jasmine J. Clark	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 10 is/are rejected.
- 7) ☒ Claim(s) 3,8,9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/6/6</u> . | 6) <input type="checkbox"/> Other: ____ |

Information Disclosure Statement

1. The IDS and the preliminary amendment filed 4/6/6 have been considered.

Claim Rejections - 35 USC § 112

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the ground plane" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 5, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Selna (US 5,741,729).

Selna '729 discloses an electronic device comprising: at least one semiconductor device, 50, eg., (see Fig. 2, eg.,) provided, on a side, with a plurality of bond pads (areas where wire bonding 22 connected therefrom); and a carrier substrate (52 and 54 in combination) comprising a layer of electrically insulating material (see column 7, lines 35-52) and having a first side and an opposed side, the first side and the opposed

Art Unit: 2815

second side are each provided with an electrically conductive layer on which first side bond pads are present and coupled to bond pads of the at least one semiconductor device 50, and on which second side contact pads 14A-14C, 14C' for external coupling, a first portion of the contact pads being defined for ground connection, a second portion of the contact pads being defined for voltage supply connection and a third portion of the contact pads being defined for signal transmission (see column 5, line 50 to column 9, line 30),

in the electronic device the at least one semiconductor device 50 is provided with core functionality and peripheral functionality, each provides with voltage supply connection and ground connection, the carrier substrate (52 and 54 in combination) is laterally subdivided into a core area (area of 14C) and a peripheral area (area of 14A, 14B and 14C'), in which core area the contact pads for the core functionality are provided and in which peripheral area contact pads for the peripheral functionality are provided, wherein the carrier substrate (52 and 54 in combination) comprises at least one interconnect (6C and/or 6C') for interconnecting the ground connections of the peripheral functionality and the core functionality, and means (6A-6C, eg.,) for decoupling the voltage supply of core and peripheral functionality to the common ground.

Concerning claim 2, an electronic device as claimed in claim 1, wherein the peripheral is located around the core (see the above discussion); a ground plane, 58, eg., is defined in a peripheral area on the second side of the carrier substrate (52 and 54 in combination), which ground plane is the interconnect for mutually interconnecting

Art Unit: 2815

the ground connections of the peripheral functionality and the core functionality, and interconnects (22, 8A, 6A, eg.,) between the contact pads (14A, 14B and 14C') and the bond pads of the peripheral functionality are defined on the first side of the carrier substrate (52 and 54 in combination), which interconnects have a transmission line character.

Concerning claims 4 and 5, wherein the contact pads 14C, eg., in the core area are defined in an array (BGA), the pads for ground connection and for supply connection being arranged in the array such that each of the pads for ground connection has pad for supply connections as the closest neighbor pads; and wherein the contact pads 14A, 14B and 14C' in the peripheral area are defined in a subgroups, each group comprising one contact pad for voltage connection, and several contact pads for signal transmission having the contact pad for example, voltage connection as a neighboring pad, please see the above discussion and see Fig. 2.

Concerning claim 10, the limitations are similar to the limitations of claim 1, please see the above discussion and see Fig. 2.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2815

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the reference as applied to claims 1, 2, 4, 5, and 10 above, and further in view of Kung et al. (US 6,779,783 B2).

Selna'729 discloses having the conductive layer on the first side of the carrier substrate (52 and 54 in combination), but fails to disclose having a stiffener layer on the first side of the carrier substrate. Kung '783 discloses a semiconductor device including a stiffener layer 342 disposed on the first side of a carrier substrate which covering part of a conductive layer. Hence, it would have been obvious to include the stiffener layer for the reasons taught by Kung '783.

5. Claims 3, 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The applied reference fails to disclose and/or suggest the following:

wherein the means for decoupling comprises a decoupling capacitor in the peripheral functionality as set forth in claim 3;

wherein a stiffener layer is present on the first side of the carrier substrate as set forth in claim 7;

wherein a heat spreader is provided on the first side of the carrier substrate and on a side of the semiconductor device facing away from the side of the bond pads as

Art Unit: 2815

set forth in claim 8; and further provided with a supply series inductor as set forth in claim 9.

Reference Cited

6. Regarding the electronic device which has similar structure to the applied reference '729 please see Cornelius (US 6,930,381 B1).

Telephone Inquiry Contacts

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jasmine J. Clark whose telephone number is (571) 272-1726. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2815

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jjbc/2/17/7

JASMINE CLARK
PRIMARY EXAMINER

